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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,325	07/27/2001	Jonathan D. Albert	INK-097 (2108/49)	1236

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EXAMINER

EISEN, ALEXANDER

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,325

Applicant(s)

ALBERT ET AL.

Examiner

Alexander Eisen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 7-12 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3 . 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-6, drawn to an electrophoretic display, classified in class 345, subclass 107.
 - II. Claims 7-12, drawn to manufacturing an electrophoretic display, classified in class 438, subclass 29.

The inventions are distinct, each from the other because of the following reasons:

- a. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process and still result in the same product. On the other hand the process as claimed can be used for manufacturing of materially different product, such as thermochromic or electroluminescent display.
 - b. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
2. During a telephone conversation with Jamie H. Rose on 12 December 2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-12 are

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiSanto et al, ("DiSanto"), US 5,279,694 (reference of record supplied by the applicant - A74) in view of Hayashi et al., ("Hayashi"), US 6,661,563 B2.

DiSanto discloses a mounted electrophoretic display assembly (FIG. 1), comprising a substrate (glass panel 2); an electrical connection (FIGS. 2 and 4) formed on the flexible substrate (97 and 98 in FIG. 2 and 110 and 112 in FIG. 4) and having a first (part of the conductors 97 and 98 delineated by dashed lines 18 or 20) contact pad and a second contact pad (106, 108 in FIG. 4); an electrophoretic display element in electrical communication with the second contact pad (col. 5, lines 53-61); a control circuit (80) mounted on the flexible substrate and in electrical communication with the second contact pad.

DiSanto is not specific about flexibility of the glass substrate (2).

Hayashi teaches a flexible electrophoretic display structure (FIGS. 1, 3 and 17), wherein the display is assembled on a flexible substrate and all control components, battery and driver circuits are integrally mounted onto the flexible substrate (see col. 7, lines 14-50; col. 25, lines

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44-54). Hayashi also teaches that depending on intended use the substrate can be made of glass, PET, paper or metal.

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to substitute the glass substrate of DiSanto with a flexible sheet-like substrate of Hayashi, because it would allow making a paper-like display with high breaking strength and easy and safe to manufacture (Hayashi; col. 4, lines 20-33).

As to claim 6, the control circuit in DiSanto comprises an electrophoretic display driver.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiSanto in view of Hayashi and further in view of Higgins, III, ("Higgins"), US 5,492,863.

DiSanto-Hayashi do not teach that the control circuit is connected to the second contact pad with a curable, electrically conductive thermoset.

Higgins teaches a method for forming conductive bumps (24 in FIG. 7) on a semiconductor device (12) for connecting circuit pad (32) with microchip pad (14), wherein conductive polymer, curable by heat is used for the bumps (col. 3, lines 17-46; col. 8, lines 28-38).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made in view of Higgins to connect the control circuit to the second pad in the display of DiSanto modified by Hayashi with curable electrically conductive thermoset, because it reduces the cost of manufacturing (Higgins; col. 3, lines 42-50), while allowing formation of small pitch bumps.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiSanto in view of Hayashi and further in view of Parker, US 6,369,793 B1.

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DiSanto discloses a mounted electrophoretic display assembly and Hayashi teaches a flexible electrophoretic display structure.

None of the above teaches electrical connection realized by conductive ink.

Parker teaches printable electrophoretic display, wherein the connection between the display and control and power-supplying components is realized by printing using conductive ink (FIGS. 1-4; col. 3, lines 42-60).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to use conductive ink printing techniques taught by Parker in the display of DiSanto-Hayashi, because it lends itself conveniently for use in the paper sheet-like display, while would be readily recognized by those of ordinary skills in the art as an alternative choice electrical connections.

As to claim 4, it is understood that the ink can be of different colors and be used as paint.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiSanto in view of Hayashi and further in view of Chan et al., ("Chan"), US 5,660,570.

DiSanto discloses a mounted electrophoretic display assembly and Hayashi teaches a flexible electrophoretic display structure.

None of the above teaches the control circuit is connected to the second contact pad by being removably mounted in a control circuit carrier that is in electrical communication with the second pad.

Chan teaches integrated circuits that are placed into a socket rather than being soldered onto printed circuit themselves (col. 5, line 63 - col. 6, line 15).

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It would have been obvious to one of ordinary skill in the art at the time when the invention was made that in view of Chan the driver circuits of DiSanto can be placed into chip carriers rather than be soldered onto a printed circuit board, because it will allow replacement of a chip, in case of damage or upgrading, much easier without requiring to de-solder it from the board (Chan; col. 6, lines 4-10).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Simoni et al., US 6,573,880 B1.

Credelle et al., US 6,606,247 B2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is **(703) 306-2988**.

The examiner can normally be reached on M-F (9:00 a.m. - 4:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on **(703) 305-4709**.

Any response to this action should be **mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or **faxed to:**

(703) 872-9314 (for Technology Center 2600 only).

Hand-delivered responses should be **brought to:** Crystal Park Two, 2121 Crystal Drive, Arlington, Virginia, Sixth Floor Receptionist.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be **directed to**: Technology Center 2600 Customer Service Office, whose telephone number is **(703) 306-0377**.

A handwritten signature in black ink, appearing to read "Alex Eisen", with a stylized flourish at the end.

Alexander Eisen
December 18, 2003